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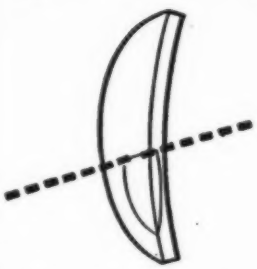

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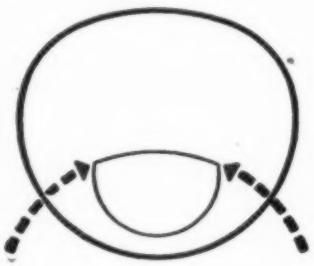

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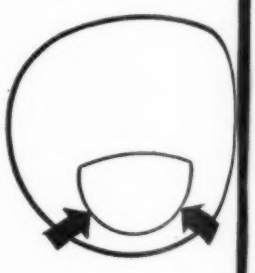

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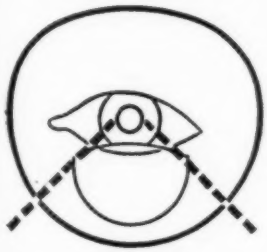

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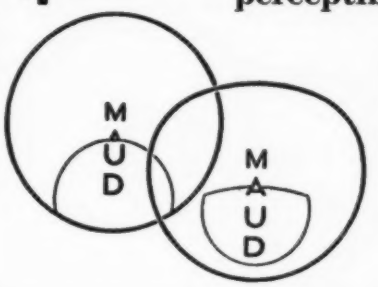

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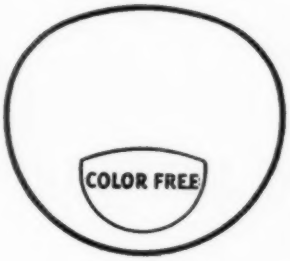

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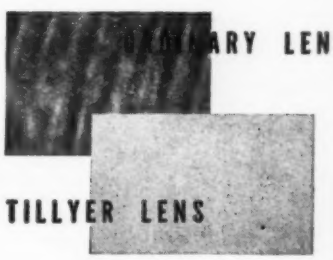

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Vol. 18 NOVEMBER, 1941 No. 11

CATARACT AND AGAINST-THE-RULE ASTIGMATISM*

Arthur P. Wheelock, Opt.D., F.A.A.O.
Des Moines, Iowa

The question of the incidence and the character of astigmatic conditions to be found in cataract cases has until recently received scant attention. Hearsay indicates the existence of various opinions on this subject based upon the somewhat dubious evidence of personal experience or "impressions." It has once been remarked to the writer that "in everyone having cataract, it will be found that the error of refraction includes a cylinder against-the-rule as part of the correction." Inasmuch as this would seem to be a rather broad generalization, the writer has undertaken to survey certain material to present evidence on the subject.

Literature

An examination of the literature on cataracts has revealed very little that could be accepted as authoritative. Gifford[1] has little to say about astigmatism against-the-rule, but does state that lenticular opacities are a factor in irregular asigmatism. Schuler[2] has stated that the actual beginning of a cataract can be demonstrated in cases where the cornea registers astigmatism of one kind and retinoscopy and subjective testing reveal astigmatism of the opposite kind. Odin[3] reports that he considers astigmia against-the-rule as a pathological manifestation, and that 90 per cent of such cases are over 35 years of age. He reports that as a result of his investigations in France, 19 per cent of the cases of astigmia were found to be against-the-rule, but that in Panama the percentage is much higher, namely, 54 per cent. This coincides with the known prevalence of cataract in the tropics. Haughton[4] says that the astigmia against-the-rule is generally in the crystalline lens, and in a vast majority of cases the lens is astigmatic only when it is (or has been) seeking to neutralize corneal astigmatism or when its refractive condition has been altered through pathology (principally in senility and preliminary to the de-

*An abridgment of the material presented before the American Academy of Optometry. For publication in the November, 1941 issue of the AMERICAN JOURNAL OF OPTOMETRY AND ARCHIVES OF AMERICAN ACADEMY OF OPTOMETRY.

velopment of a cataractous condition). He goes on to say that apparently the normal crystalline lens is astigmatic to the extent of about ½ diopter against-the-rule. In other words, the so-called emmetropic eye has a crystalline lens whose refractive power is ½ diopter weaker in the vertical than in the horizontal meridian. This condition is neutralized by the reverse situation in the cornea, namely, a vertical meridian with half a diopter stronger power than the horizontal. Therefore, according to Haughton, an astigmatism of half a diopter with-the-rule is physiologic and may be considered normal. This physiologic astigmatism with-the-rule tends, in senility, to reverse itself to astigmatism against-the-rule. In senile cases from 50 to 55 years of age and upward, the crystalline lens loses much of its elasticity. Consequently, its indicated astigmia is more likely to be genuine. Furthermore, the crystalline lens cell structure in many persons tends to "break down" and to develop various types of astigmia; particularly is this true of those cases in the early stages of cataract development before opacities become visible.

A clear definition of astigmatism against-the-rule is now in order. Astigmatism is said to be against-the-rule when the principal meridian of the greatest power is at, or inclines toward, the horizontal. By definition, hyperopic astigmatism with the axis at or near the horizontal meridian, or myopic astigmatism with the axis at or near the vertical meridian may be termed against-the-rule astigmatism.

Survey

Because of the nature of the problem, adequate and conclusive evidence could be obtained only after a systematic investigation of the changes taking place in the crystalline lens over an extended period of time. In the writer's opinion, however, an approximation of such a procedure sufficient to supply an indication of the facts in the case, can be determined by a study of clinical case records. These records, however, must be the product of an examination procedure which has been uniform over a long period of time. In the writer's practice the refractive routine has been relatively uniform and the instrumentation has remained practically the same over a period of twenty years. The same careful search for incipient cataract has been made in every examination. Everything has been done to keep out or reduce variables to a minimum. A patient was recorded to have cataracts only when an actual opacity was found.

A complete ocular examination was made in every case included in

this report. The instruments used to examine the crystalline lens were the retinoscope, a hand slit lamp, and the Busch Ophthalmoscope with a magnification of 11 diameters. Ophthalmometer findings were recorded, but were not taken into consideration in this report, under the assumption that the corneal curvature had no bearing on lenticular changes, but when the findings of the retinoscope and subjective tests both indicated an against-the-rule astigmatism, it was accepted as conclusive. All cases were examined, regardless of the age of the patient, and no single year was favored. Records were selected in all years from 1923, to and including 1939. From the records were selected 4800 cases whose eyes the writer had examined quite regularly every two years.

The questions raised in surveying this material were: (1) In an average optometric practice, what percentage of patients have some type or other of cataract? (2) How many patients developing cataract require, as part of their correction, a cylinder against-the-rule, when at one time they required only a spherical correction; and would this change in error be found in a sufficient number of cases to make this change conslusive?

Results

Of the 4800 cases investigated, 280 cases had developed cataract. Of these 280 cases, 160 wore, and are still wearing, spherical correction; 72 wore, and are still wearing cylinders with-the-rule; 48 of the 280 cases now cataractous wore spheres, and are now wearing cylinders against-the-rule. By far the greater majority required cylinders not exceeding ¾ of a diopter. This material may be arranged as follows: (1) Cases formerly astigmatic now the same; 72 or 25.7 per cent of cataracts. (2) Cases formerly non-astigmatic, now against-the-rule; 48 or 17.7 per cent of cataracts. (3) Cases formerly non-astigmatic, now the same; 160 or 57.2 per cent of cataracts. (4) Total number of cataract cases, 280 or 5.8 per cent of total cases. (5) Number of non-cataractous cases, 4520, or 94.2 per cent of total cases. (6) Total number of cases investigated, 4800. In other words, of 4800 cases examined regularly, 5.8 per cent developed cataract over a period of 16 years. Of the latter cases, 17.1 per cent who were non-astigmatic now evidence an astigmatism against-the-rule.

Summary

The opinion that a change to astigmatism against-the-rule is an early indication of cataract is unfounded by the evidence of this investi-

gation. The fact that 17 per cent of the cataractous patients evidenced such a change is inconclusive support, in view of the fact that 57 per cent of the cases remain free from astigmatism and 27 per cent of formerly astigmatic cases continue to require similar astigmatic corrections.

The figure of 5.8 per cent of cataractous cases, however, is interesting and might be considered reliable for this climate. This investigation could be made more conclusive by a breakdown of cases showing the amount of change in cases where a change occurred, but it is felt that the evidence thus far presented is sufficiently conclusive to discourage the notion that against-the-rule astigmatism is to be found in all cataract cases.

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DR. ARTHUR P. WHEELOCK
EQUITABLE BLDG.
DES MOINES, IOWA

MOTIVATING ONE HUNDRED THOUSAND PATIENTS*

Reporting an Experiment Conducted at the Northern Illinois College of Optometry in Chicago, from 1930 to and including 1939.

W. Jerome Heather, O.D., D.O.S., F.A.A.O.
Southbridge, Mass.

A—FORMULATION OF THE PROBLEM

1930 found optometry in fairly general disrepute. Partly, it was deserved and partly, it was because of exaggerations. Optometry was struggling to get authoritative recognition as a profession. Any justification of that claim was eagerly publicized.

Internal struggles between professional optometrists and commercial optometrists were close to their peak in intensity. The peak was reached about one year later when it is alleged that a few optometrists in a large middle west city considered the proposal of gangster terrorists to secure the service of bombers. These bombers presumably were to throw "pineapples" (bombs) into the stores of lay organizations who were prostituting optometry.

Optometry was slowly declining numerically and the educational requirements of her schools were relatively poor. Developments and expansions of educational programs in the colleges, as well as increased requirements, were opposd by politics in optometry, petty and otherwise. Jealousy, ignorance, stupidity, and deception thwarted every move.

Selling glasses by cut-throat, "dog-eat-dog" methods were the order of the day in optometry except with a few individuals. Quality in materials wasn't and couldn't be the sole aim and goal of the optical industry. It had to be price. First quality material was presented for sale apologetically and with bated breath. Most optometrists sold glasses. There, briefly, was the problem in 1930.

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*An abridgment of the material presented before the American Academy of Optometry. For publication in the November, 1941 issue of the AMERICAN JOURNAL OF OPTOMETRY AND ARCHIVES OF AMERICAN ACADEMY OF OPTOMETRY.

B—ANALYSIS OF THE ASSUMPTIONS

Optometry desperately needed favorable public opinion. It could only be obtained deservedly and then slowly—one step at a time. Many facets of optometry must be polished to present it as a profession. Otherwise, it could hardly hope to achieve the favorable public opinion desired.

Briefly those facets might be listed as follows:

1. Establish a clean, clear differentiation of professional and commercialized optometry that could be understood by the public.

2. High levels of professionalism must be set.

3. Conviction, confidence, and courage must replace fear, uncertainty, and dishonesty.

4. Public trust must be courted and justified by the use of finer and finer materials in the correction of visual errors.

5. Inter-dependence between optometry and the optical industry must be instituted, encouraged, so as to be mutually profitable.

From the foregoing it is assumed that by an experiment on the behavior of the embryo optometrists—the students in optometric colleges—results would be positive, if slow. "Grass root" work must be done and a method was important.

Further this assumption recognizes that primarily the polishing of only one facet was contemplated. It was proposed to limit the problem to the direction of behavior in the case of optometric students so that they might better motivate people.

Effectively, motivating people—patients—could well result in economic, sociologic, and professional gain. In the face of such widespread gains, optometry might purge itself of commercialism and present a more united front, thereby constantly building confidence.

C—CONDITIONS UNDER WHICH THE SOLUTION MUST BE ATTEMPTED

1. Optometry divided in its own house was suspicious of its own integral parts. Any far-reaching and intensive plan would draw critical observation from some members of the profession. Coming in contact with the students and being bent on a program of rationalization, such practicing optometrists were likely to influence the thinking of the students in the wrong direction.

2. The inadequate requirements for entrance into optometric colleges of that day, lowered the age level of optometric students below that

of the average medical or dental student by some two to three years. The number of years is important only in that it dropped the average age of the optometric students down into that difficult age level between 18 and 24 years of age. At this age level strong leadership and a real program intelligently applied was necessary to attract their cooperation.

3. As before stated, at that time the strongest and most pre-eminent consideration in much of optometry was the selling of glasses. Except for a few individuals it might be said without fear of contradiction that methods, systems, and forms of examinations, while individual, were designed more to help indirectly in the sale of glasses than for purposes of scientific precision.

This thinking could be easily transferred to the embryo optometrists—the students. It would account for students trying more direct methods of selling rather than the practice of those attitudes peculiar to a profession.

4. With optometry in a hybrid state it was hard to realize that the "selling" of the professional man differs widely from that selling used effectively in other fields. The volume of sales in the optical industry credited to the optometrists attracted the unfavorable attention of the guild opticians and, in some cases, the oculists and medical refractionists.

D—THE CONDUCTION OF THE EXPERIMENT

An unusual opportunity was afforded during the last ten years, 1930 to 1940, to conduct this experiment in the science of motivating people. During that time at the Northern Illinois Eye Clinic, in Chicago, Illinois, the writer as director had the opportunity of coming in contact, either directly or indirectly, with approximately 100,000 people—mostly optometric patients. During the early days, a great deal of the contact was in person and directly. Increasingly through the years, it became an indirect contact through the medium of some 2,000 to 3,000 young men and women students in optometry.

Ordinarily, experimentation is associated with the tabulation of accumulated data. In this case there are none. The only evidence of the result of that experimentation was a gradual changing and stabilizing of a personal attitude by which many people had been and were to be motivated. Lacking accumulated data, which because they are intensely personal are difficult to segregate, this experiment emphasizes a grave question still facing optometry for solution today. Are professionalism and good economics compatible?

Many of those 100,000 patients would realize that the young "doctor" was very young. They might even suspect the truth—that the "doctor" was an interne-student. Any form of motivating those people must be strong and effective. Otherwise, there would result a gradually dying clinic, which would defeat and discourage students of optometry. Continuous fault-finding, loss of money, and even lawsuits might follow.

What really happened disposes of that foreboding, for the clinic thrived and, it can be said without fear of contradiction, grew to be one of the largest refractive clinics. Students were encouraged and went out in confidence to win their spurs. Relatively speaking there was no fault finding or legal involvement. It is fair to say, then, that the system of motivating gave evidence of being strong and effective, although it was attended by many problems of inconsistency and unpredictability. Many handicaps had to be overcome, a fact which prompts a report of this experiment.

Difficulties attending the task make it improbable that the reader will discount the experimentation because it was conducted in a clinic. He might be excused for doing so, but he should consider first, some of the conditions under which the experiment was conducted—under what conditions the young "doctors" faced the problems of motivation. During the period we are here considering they were studying clinical optometry in the Northern Illinois Eye Clinic, and during that period were, almost without exception, professionally minded.

AN IMPORTANT CONTROL

Too many optometric students face economic problems at graduation and so enter the commercialized practice of optometry. Knowing this, certain controls had to be set up to prevent them from experiencing, as students, the only questionable urge that exists in commercialized optometry, namely, the opportunity of grabbing unearned money. Control was accomplished with the aid of the local wholesale supply houses, who, insofar as was possible, refused students access to wholesale prices or second quality materials at any price. This cooperation made it difficult for students to damage their morale, so important to the project, by little acts of "chiseling." They could only do so by elaborate machinations and with the *sub rosa* aid of unthinking optometrists and dealers.

With the control, just described, in operation we are directed

promptly to the first of three well defined steps in the conditioning applied during the student's junior year and prior to his year of practice as an interne in the clinic.

PROFESSIONALIZED OR COMMERCIALIZED?

The first step in conditioning caused the student to weigh objectively and differentiate professionalized and commercialized optometry. If the conclusion reached seemed to favor commercialized optometry, then motivation should take the form of sales psychology, propaganda, and the like. Otherwise, the course offered by this experiment should be followed.

These young men and women, to be conditioned during their Junior year in preparation for the clinic, were asked to participate in a blackboard demonstration. The left half of the blackboard was labeled "Professional Optometry" and the right was labeled "Commercialized Optometry." Chart No. 1.

(Chart No. 1)

OPTOMETRY	
EARNING POWER	
PROFESSIONALIZED	COMMERCIALIZED
Nothing to Start—0 to —?	Salary to Start $35 and Might Go to $85
Slower Increase but Unlimited in Amount	Faster Increase but Limited in Amount
No Decrease with Age	Decrease with Age
PERQUISITES OR PECULIAR REWARDS	
Has Opportunity to Serve in Public Health Projects, in Needy Schools, in Rural School, in Civic Projects	
Peculiar Rewards in Recognition of Service, Trustworthiness and Integrity, are Offered by Churches, Schools, Civic Organizations. Leadership is Made Available.	?
FUTURE	
Refraction is the Primary Interest of the Optometrist and One to Which Medicine Gives Little Attention.	Frontal Attacks from B.V.I., Better Business, Medicine and Professional Optometry Point the Way.
Striving to Rise Above Earlier Limitations Marks the Professional Optometrist.	Among Themselves It's a "Dog Eat Dog" Fight to the Finish.

DESCRIPTION OF TERMS

Professionalized optometry was described general enough to include all those practicing for themselves, or for another optometrist established in professional practice. It was professionalized optometry, whether upstairs or downstairs.

Commercialized optometry was described as the sale of a man's services and the use of his license, as an optometrist, to laymen operating stores dealing in optical goods. One example of commercialized optometry cited was that of a former graduate—a fine fellow. After graduation a letter mailed from a town in Texas was received from him. He emphasized his primary wish to go into professional practice, but stated that he had an opportunity to enter commercialized optometry. He said:

> "If you will give me a good recommendation for this job, I promise to leave it as soon as I am financially able to do so."

Experience proved the weakness of his point. Most of those who start commercially think they will sometimes quit and become professional. Usually they do not. Finally, a letter, requesting details about the young optometrist in Texas and references as to his character, was received from a firm with headquarters in New York. However, the answer was to be returned to the Chicago office of the firm. Here was the point. This young man in a small town in Texas, was being checked on by an organization in New York who expected their Chicago office to get the information. Probably it was transferred eventually to Kansas City or Dallas. All in all, it offered a picture of commercialized optometry.

These junior students were asked to assist in the calculations on the blackboard diagram. It was emphasized that they would be ethically concerned with earning power immediately upon graduation. We must face the truth in that. After young men or women have used someone's money and three or four years of their time to get an education, it is reasonable to expect them quickly to harness that education, ability and training. They feel they must make money to re-establish their own funds or repay other people. Who is different?

EARNING POWER

The first point of comparison then was earning power.

These students had an opportunity to visit around the City of Chicago, in and out of commercialized optometric stores, and discover the beginning salary for commercialized jobs. They discussed it there in class. They established the range as between $25.00 and $35.00 a week; either straight salary, salary plus commission, or some other form of compensation. The highest figure on the board was listed under "Commercialized Optometry"—$35.00 for a starter. What would be the opening

earnings in professional practice? This figure was put down as zero.

Next, what is the highest salary paid to an experienced optometrist in commercialized practices of optometry? Discussion followed and the figures ranged from $50.00 to $80.00. One young man stated that the highest was $125.00 a week and he named the company. Under questioning it developed that $125.00 was paid to an optometrist who acted as manager in charge of three or four stores. It was shown that part of this $125.00, probably the largest part of it, was paid for administrative ability, and not for ability as an optometrist. The argument was settled by using on the blackboard a top figure of $85.00 per week. There had to be a limit.

Shifting to the professional side of the board, the question was raised as to their knowledge of the highest figure in the earnings of a professional optometrist. Students then and there considered fathers, close friends, and others in successful optometric practices who were making at least $5,000 to $7,000 per year, net profit.

Analyzing, it was shown that while on the commercialized side of optometry the earnings were quicker, they were also limited. On the professional side, earnings were slower but unlimited.

Time was taken to emphasize the factors that limited the earnings of the optometrist in commercialized lay units. It was pointed out that however well the optometrist was able to refract and sell, there was only a given amount of work possible in a given amount of time. Certain percentages of the income as a result of commercialized work must go to satisfy the office in Kansas City, the office in Chicago, as well as the one in New York. In professional optometry, however, the only limits placed on earnings were personal ability and desire to work.

PECULIAR REWARDS

The second point for comparison was the peculiar rewards to be won.

Professional men are concerned about the peculiar rewards of life: the perquisites, if you please. This makes a convincing argument because these rewards of life are usually reserved for those who have earned them through service. Professional service is well recognized. The public has special consideration for the clergy, for the doctors, for the teachers and for all who similarly serve. The public considers that the earnings of those who serve thus should be in two parts: first, reasonable and regular

earnings allowing the professional a fair living, and second, an accumulative service reward. Many of these young men and women remembered evidences of this in the lives of their fathers, uncles and friends who were in professional practice. Here, one was treasurer of his church; there, one was president of the library board. They knew other people who enjoyed honors paid them by their fellow citizens and townsmen.

On the commercialized side of the chart there were no perquisites, because in the first place there was usually some questionable selling to be done. Certainly, it was sales, not service. Commercial optometrists were compelled to face people led in by advertisements of price and then wheedle them into buying something else. Some of the methods used were exposed to the class. They could see that a man who worked under such a system felt well off if he got home at the close of the day without cringing. Certainly he did not expect peculiar rewards. *He had not served.*

WHAT ABOUT THE FUTURE?

The third point for comparison had to do with the future of optometry.

On the commercialized side of optometry, the only future to be faced was larger and larger commercialized units, units to swallow up, to undercut in price, to buy in ever larger lots so that eventually all would end in a price war, to the finish.

On the professional side of optometry the picture was quite different. The gradual establishment of optometry in civic life, with Federal and state recognition was described as was the development of increasingly favorable public opinion. Rapid evolution had occurred in optometry. When earlier lecturers and teachers had criticized commercialized optometry, some professional men in the audience felt that perhaps his commercialized brother was being abused and set out to protect him. For years it was impossible to mention the differences between professional optometry and commercialized optometry, even in the annual resolutions of our national organization, the American Optometric Association.

But there has been a change. Resolutions passed in the last few years have increasingly attacked commercialized activities. Commercialized optometry has been attacked bitterly and publicly by the optometrists themselves. When men turn and righteously attack their own brothers despite subjective weighting, then there is a future. This has been occurring in optometry.

Summing up then, slower but unlimited earning power, peculiar rewards and a hopeful future, offered favorable advantage for professional optometry in the blackboard analysis. These young doctors doubtlessly entered the clinic professionally minded, except in a few cases.

Differentiating the conditioning to be accomplished, we leave behind as finished for the time, the thinking of the young "doctors." They were thinking professionally. The conditioning which must be designed to affect their habits, their acts and their words, obviously presented a more profound problem.

CONTROL BY DOMINATION

Now must come a confession which has to do with some of the very early training in the profession. At that early period patients were to be controlled by domination. In class discussions and demonstrations, the doctor, dressed in a gray tweed suit which emphasized his size, sat on a high iron stool facing the patient. The patient had been placed in a low deep chair. (The doctor must have looked like "Man Mountain" to the patient.) The patient was to be dominated into doing as the doctor wanted him to do. Size would help. For some this was easy. Early, young men were taught the art of domination. Incidentally, contemporary teaching in fields of medicine and dentistry were on the same basis. Thinking psychologists of today have criticized it and some have ridiculed it. Dr. George W. Crane, of Northwestern University called it "brass hatting."

Some older persons remember the "family doctor" in days when education in medicine was not as profound as it is today. The family doctor ruled by love. Compare him with some of today's specialists in large buildings of great cities. Their activities, based on domination and fear, have been exposed from time to time, but they have not been broken up. Some professional men still feel such a system is essential to success. Hippocrates didn't plan it that way. The way of the "family doctor" to the contrary, indicates what we will present here.

WHY MOTIVATION?

Of course, when looking for ways and means of controlling other people, there must be some reason why they should be controlled. It would be well to deal with that point insofar as the professions are concerned, right here and now.

As a rule we avoid situations where we have been made uncomfortable. This places the professional man, the physician, optometrist,

and dentist in a much different position from people in any other selling field—a much more precarious position.

In other selling fields a protective device based on psychology goes into operation. For instance, when we are led by salesmanship to buy a new radio, there is a question in our mind whether the old one is good enough and we may fight that sale. We may fight the sale until it is finally made. But from the time we hand over our money we will uphold that purchase, if need be, by rationalization—yes, even when it may be intellectually dishonest to do so. We do not want to be made a "sucker."

Observe so-called Tag Days; days when Veterans' organizations sell poppies. It is easy to note that few cars are driven over to the curb in order to invite recognition by the faithful auxiliary member standing in the cold, rain, or snow—doing her bit. True, the car may be stopped for a red light, but still in general, the passenger avoids the eyes of the young solicitor. He makes no attempt to summon her to the car to give his money. In walking to the office he evades other collectors, all the time calling the plan a "racket." Just as he reaches his office building, a solicitor halts him. He has fought a good fight, but they finally get to him. As his quarter hits the bottom of the collection box, what has been a "racket" becomes a "great humanitarian endeavor" and he wears his tag proudly.

Consider many fields of selling. Rationalization protects the feelings of the buyer and at the same time protects the future of the seller. This is not true in the professions.

DIFFERENT ECONOMICS FOR THE PROFESSIONS

Physicians are compelled to make people do things they do not want to do. Nobody likes to take medicine or pills. Few of us willingly lie down on the operating table to have an appendix removed. Few of us enjoy diets. Few of us like to have our lives regulated by the physician.

Dentists face the same danger. Few of us like to have our teeth drilled. We hate to have teeth pulled. We do not want to wear dentures or plates. Most of us avoid the dentist as long as we possibly can.

Optometrists have the same problem. Few people like to wear glasses. Few people like to give up time to visual training when it might be spent in the great outdoors or at home in comfort. All of these, the physician's patients, the dentist's patients, yes, and the optometrist's

patients, have to pay for being made to do what they don't want to do —to be inconvenienced.

Professional men must have some form of "control." Patient control, as it were. It has been called the psychology of command. We are using here the scientifically accurate term, motivation. Call it what you will, the fact remains that unless the professional man has some form of control over his patient, economic collapse will be his future.

Professionals must make people do what they don't want to do—to do what they don't like—pay for it, and then like it well enough to come back and again pay for more of what they don't like. Patients must be motivated to come back, and to send others to the doctor. The doctor's method of motivation must be scientifically sound or in time it will fail. Quacks, because of unscientific methods, succeed well for a while only.

Motivation by the professional must be so directed that patients will return, even though they have been hurt or made to do things they do not want to do. Motivation, regardless of its form, must result in making the patient like the doctor enough to offset the things he has been made to do against his own desires.

Domination as a motivating influence on people by the professional will not always do the job. Students in classes often present a motley group. Some tall, lively-looking young men might be able to dominate. Other tall ones might not. Experience taught that. Some short fellows would present odd pictures in the role of domination. Other little men might get along all right. Some of the larger ones might be able to step up to a patient and dominate the interview. Some of their smaller brothers attempting domination might find themselves lost indeed.

A program of motivation is unsatisfactory if it functions only for a few. Some form of motivation must be taught which can be used by everyone, regardless of size, color, creed, class, nationality, or anything else.

PSEUDO-SCIENCE

Constantly, pseudo-scientific methods of controlling people are offered. It is amazing how many usually critical people are induced to believe in and practice pseudo-scientific systems.

Phrenology — character reading from cranial conformation — is pseudo-scientific. These classes in preparation for clinic were told of phrenological experimentation by Northwestern University. The psychology department of Northwestern allegedly had selected four or five men from the football squad and sent them to a leading phrenologist in Chicago for character reading. Later they were sent to another phrenologist of equal "reputation." He made his examination without knowing about the previous one. It was amazing how the characters of these young men had changed in a few hours.

Physiognomy—reading character by study of the face—astrology, numerology, graphology, are all really in the same class, with palmistry, the reading of tea-leaves, the reading of playing cards, crystal gazing, and the like. They are all pseudo-scientific. They have popular appeal and flourish simply by virtue of high pressure salesmanship.

Pseudo-science would be dangerous in teaching these young doctors to motivate the public. They were shown a book put out by one of the high pressure sales organizations which included pictures of various types of people and classified them. The material described how to shake hands with each type; how to deal with each; with what to agree; with what not to agree, and so on. If these statements were true the doctor could apply them easily through a small peephole between the refracting room and the reception room. He could have his office girl seat every patient in front of this peephole, possibly under special lighting effects. Unobserved the doctor could then compare the patient with the pictures in the book until he found the right type. Confidently he would know exactly what to say to each patient and how to motivate each. Accurately presented this material appeared so ludicrous that its subtle influence was obviated.

Since we've dealt harshly with these alleged techniques, it is obvious that any program of motivation must have a scientific background. Pseudo-scientific methods of analyzing and controlling people are saleable because professionals, like others, hope to obtain some simple formula by which they can set up a mesmeric control over their patients. Not all, but many, imagine that control must deal with illusive and supernatural elements like witchcraft and voodooism. The truth of the matter is that there are no secret words or mystic wands to wave. The way to success in motivation is arduous and long. As is usually true, the right way is the hard way.

SEQUENCE OF TRAINING

The second step in conditioning applied directly to the individual. It demands honest, fearless, searching and meticulous study of themselves by the students. Self had to be studied to be controlled. Self control and management must precede the control and management of others. Approximately 100,000 patients were to be motivated through the young "doctors." The sequence of training or teaching followed this order:

1. Self control (knowledge of and ability to handle yourself efficiently and effectively).
2. Observation (knowledge of other people and of their responses).
3. Technique (ability to do a good workmanlike job almost automatically).
4. Knowledge (ability to integrate profitably all previous formal training).
5. Judgment (ability to harness all the foregoing in the light of accumulated experience to date).

It was important that the conditioning of these young "doctors" should occur while they were young enough to be pliable mentally. With some practitioners patient control never begins, but if properly begun, it should never end. It should characterize the ideal relationship between practitioner and patient throughout the life of the patient, extending over to the latter's progeny.

Somewhere in this material, mention was made of the "family doctor." His successes in dealing with people were not alone because of his knowledge, but because of his thorough understanding of human nature. His strength was in his knowledge of human behavior and understanding. First things must come first, however, and the knowledge and understanding of others follow naturally on a thorough knowledge and understanding of ourselves.

Self mastery is surprisingly difficult because it is so easy to perceive attitudes, especially unwholesome ones, in other people, but so very difficult to discover them in oneself.

A famous cartoonist was once employed to entertain at a lawn party. It was noteworthy that those who surrounded him for amusement were able to laugh heartily at every caricature except their own.

SELF ANALYSIS

These young "doctors" then, were led first into channels which would help them in studying and mastering themselves insofar as their age limitations would allow them to do so. Each was required to produce objectively, a graphic study of his or her own personality. For the purpose, five main divisions were laid down, namely, the body, the mind, the coordination of mind and body, the emotions, and the social implications. Each of these was again broken down into an average of eight subdivisions.

Body

Eight subdivisions were studied under the division, "the body." Physique, health, senses, energy, voice, posture, physical presence, and apparent intelligence, challenged objective measurement and recording. Chart No. 2.

Chart No.2. THE BODY.

(Self-Analysis Chart)

PERSONALITY FACTORS:	RATING SCALE 25%	(Each O counts for 5%) 50%	75%	100%
Physique...	Poor	Fair	Good	Excellent
Health.....	Poor	Fair	Good	Excellent
Senses.....	Irremediable	Unremedied defects	Defects, but corrected	Excellent
Energy.....	Sluggish	Moderate	Adequate	Abounding
Voice.....	Uncultivated and unpleasant	Cultivated but unpleasant	Uncultivated but pleasant	Cultivated and pleasant
Posture	Poor	Fair	Good	Excellent
Physical presence...	Negative	Average	Impressive	Dominating
Apparent Intelligence	Stupid	Average	Intelligent	Brilliant

Average for "the Body" 85 %

Each of the eight subdivisions was discussed thoroughly in order that measurements might be more accurately made. Emphasis was placed where corrective steps might be taken by individuals if properly guided. In "physique," "standing and walking tall" were urged. The importance of abounding "health" was developed. Public speaking was urged and instructions on technique were included under "voice."

Mind

"The mind," as a main division, was subdivided into range of experience, ambition, schooling, interests, memory, word skill, logic, observation, open-mindedness, understanding, judgment, and creative ability. Chart No. 3.

Chart No.3. THE MIND.

(Self-Analysis Chart)

RATING SCALE--Each O counts for 5%:

FACTORS	25%	50%	75%	100%
Range of Experience.	Narrow	Average	Wide	Unique
	O O O O O	O O O O O	O O O O O	O O O O O
Ambition...	Lacking	Below capacity	Beyond capacity	Compatible with capacity
	O O O O O	O O O O O	O O O O O	O O O O O
Schooling..	Illiterate	Grammar sch.	High school	College
	O O O O O	O O O O O	O O O O O	O O O O O
Interests..	Lacking	Scattered	One specialized	One specialized; others diversified
	O O O O O	O O O O O	O O O O O	O O O O O
Memory.....	Poor	Average	Good	Excellent
	O O O O O	O O O O O	O O O O O	O O O O O
Word skill.	Poor	Average	Good	Excellent
	O O O O O	O O O O O	O O O O O	O O O O O
Logic.....	Poor	Average	Good	Excellent
	O O O O O	O O O O O	O O O O O	O O O O O
Observation	Poor	Average	Good	Excellent
	O O O O O	O O O O O	O O O O O	O O O O O
Open mindedness.....	Lacking	Average	Good	Excellent
	O O O O O	O O O O O	O O O O O	O O O O O
Understanding.....	Limited	Average	Applied art or science	Pure science or art
	O O O O O	O O O O O	O O O O O	O O O O O
Judgment...	Common sense and originality both lacking	Either common sense or originality lacking	Original and bright	Original and brilliant
	O O O O O	O O O O O	O O O O O	O O O O O
Creative ability....	Lacking	Average	Applied art or science	Pure science or art
	O O O O O	O O O O O	O O O O O	O O O O O

Average for the "Mind" 80 %

Increasing one's "range of experience" was urged as well as the development of "word skill," "observation," and "open-mindedness." The importance of a good rating on "interests" brought out that a professional man should know something about everything and everything about something.

Co-ordination of Body and Mind

In order to better study the "coordination of mind and body" separate consideration was given the following: initiative, effort capacity, oddities, neuro-muscular pattern, talent, response, attractiveness, and poise. Chart No. 4. "Oddities" of individuals can be so delightfully

COORDINATION.

Chart No.4.

(Self-Analysis Chart)

RATING SCALE--Each O counts for 5%:

FACTORS:	25%	50%	75%	100%
Initiative.	Lacking O O O O O	Fair O O O O O	Good O O O O O	Excellent O O O O O
Effort Capacity...	Neither intensive nor sustained O O O O O	Very intensive; short duration O O O O O	Moderate intensity, long sustained O O O O O	Very intensive; long sustained O O O O O
Oddities...	Hindering O O O O O	Neutral O O O O O	Beneficial O O O O O	Very benefic'l. O O O O O
Neuro-Muscular Pattern.....	Flabby O O O O O	Average O O O O O	Firm O O O O O	Very firm O O O O O
Talent.....	Lacking O O O O O	Average O O O O O	Gifted O O O O O	Very gifted O O O O O
Response Time.....	Slow O O O O O	Average O O O O O	Rapid O O O O O	Very rapid O O O O O
Attractiveness.....	Repellent O O O O O	Average O O O O O	Good O O O O O	Excellent O O O O O
Poise.....	Lacking O O O O O	Unstable O O O O O	Good O O O O O	Excellent O O O O O

Average for "Coordination" 80 %

beneficial but may be so terribly hindering, that time spent in exposing some of them was worthwhile. Firmness in the "neuro-muscular pattern" was stressed as was "attractiveness" and a wholesome "poise."

Measuring Emotions

"Emotion" is the medium through which we express ourselves to others, and for that reason temperament, sensitivity, intensity, sense of humor, emotionalism, and enthusiasm were considered as subdivisions. Chart No. 5. Cheerfulness in "temperament" and keenness in "sensitivity" shared emphasis with a hearty "sense of humor" and warm "emotionalism." Emotions can either innervate or enervate and, with the former desired, some guidance was offered in balancing and controlling feelings.

Chart No.5. EMOTION.

(Self-Analysis Chart)

RATING SCALE--Each O counts for 5%:

FACTORS:	25%	50%	75%	100%
Temperament	Melancholy O O O O O	Uneven O O O O O	Even O O O O O	Cheerful O O O O O
Sensitivity	Dull O O O O O	Average O O O O O	Exaggerated O O O O O	Keen O O O O O
Intensity..	Weak O O O O O	Average O O O O O	Strong O O O O O	Powerful O O O O O
Sense of Humor.....	Perverted O O O O O	Lacking O O O O O	Mild O O O O O	Hearty O O O O O
Emotionalism.....	Exaggerated O O O O O	Lacking O O O O O	Mild O O O O O	Warm O O O O O
Enthusiasm.	Lacking O O O O O	Average O O O O O	Strong but transient O O O O O	Strong and sustained O O O O O

Average for "Emotions" 71 %

Social Implications

Practically applied to society the individual is either social or unsocial. "Social implications" was subdivided for consideration into impression on others, adjustability, memberships, sportsmanship, sex attitude, friends, standard of living, and attire. Chart No. 6. All preceding considerations in this work of self-study assumed their values in the integrated whole as attention was turned to the end result—the "social implications." An "adjustability" that was rapid and complete was urged upon the candidates as the most important single attribute they could possess. Training was indicated through the operation of a "complement course" which was later applied, and will be later explained.

SOCIAL

Chart No.6.

(Self-Analysis Chart)

RATING SCALE--Each O Counts for 5%:

FACTORS:	25%	50%	75%	100%
Impression on Others..	Poor 0 0 0 0 0	Average 0 0 0 0 0	Good 0 0 0 0 0	Excellent 0 0 0 0 0
Adjustability....	Slow and insufficient 0 0 0 0 0	Rapid but incomplete 0 0 0 0 0	Slow but complete 0 0 0 0 0	Rapid and complete 0 0 0 0 0
Memberships	Detrimental 0 0 0 0	Harmless 0 0 0 0	Helpful 0 0 0 0	Uplifting 0 0 0 0
Sportsmanship.....	Bad 0 0 0 0 0	Fair 0 0 0 0 0	Good 0 0 0 0 0	Excellent 0 0 0 0
Sex Attitude....	Perverted 0 0 0 0 0	Poorly integrated 0 0 0 0 0	Unconventional 0 0 0 0 0	Well integrated 0 0 0 0
Friends.....	Detrimental 0 0 0 0	Harmless 0 0 0 0	Helpful 0 0 0 0	Uplifting 0 0 0 0
Standard of living.....	Below means 0 0 0 0 0	Beyond means 0 0 0 0 0	Good and within means 0 0 0 0	Excellent and within means 0 0 0 0 0
Attire.....	Slovenly 0 0 0 0	Not unpleasing 0 0 0 0	Pleasing 0 0 0 0	Smart 0 0 0 0

Average for "Social" 80 %

Measuring Sticks

As will be noted in the self-analysis charts for each subdivision, criteria were set up, four for each. They ranged, for instance, from: First, the lowest criteria, 0 to 25%; second, 25 to 50%; third, 50 to 75%, and fourth, 75 to 100%.

For instance, let us consider the subdivision "voice" under the main division, "body," and note the criteria. The lowest, from 0 to 25%, was uncultivated and unpleasant; the second, from 25 to 50%, was cultivated but unpleasant; the third, from 50 to 75%, was uncultivated but pleasant; and the fourth and highest, from 75 to 100%, was cultivated and pleasant.

Emphasis was placed on the necessity for intellectual honesty in making these measurements. It is amazing how earnestly young people between the ages of 18 to 24—the age of intellectual adolescence—seek the truth. It is equally amazing how much they can be interested in something which they feel to be "about something." It was suggested to them that they rate themselves by comparison with others. Obviously it was impossible to furnish any other and more accurate yardstick for each of these many subdivisions.

For each of the subdivisions, then, they were asked to consider an individual of their acquaintance who impressed them in connection with one or more of the characteristics under measure. Using him or her as a norm they were to measure their own traits as being better or worse and to what degree.

Some of the charts resulting from this would astound many adults just as they astounded the teaching staff responsible for the course. Many of the subdivisions were measured against such criteria, for instance, as poor, fair, good, and excellent. Not all were as involved as "voice" which has been mentioned above. Study the criteria given for the subdivision "voice," and many interesting points are developed. Thinking was stimulated and thus the conditioning was more or less constant. If asked to give the second lowest criterion for "voice," which might follow one of uncultivated and unpleasant, you might be excused for answering, "uncultivated but pleasant." Thinking it through, however, would lead to the conclusion that the fact of cultivation was not as important as was pleasantness. So then, the second criterion, cultivated but unpleasant, led reasonably to the third—uncultivated but pleasant.

Self

As the graphing of the individual personalities continued, it was possible, having set a percentage on each of the subdivisions under a main division, to total them and strike an average for that main division. Then, taking the figure for each of the main divisions, totaling them and striking an average, it was possible to establish an estimate of the effectivity of that particular personality. Chart No. 7. In other words, the young "doctor" had established his own percentage. It is clear also that with this chart made, let's say, at the beginning of a semester, it was possible for the young "doctor" to improve himself in spots where

Chart No.7. TOTAL PERSONALITY RATING.

(Self-Analysis Chart)

RATING SCALE--Each O Counts for 5%.

DIVISIONS:

	Poor	Fair	Good	Excellent
The Body	O O O O O	O O O O O	O O O O O	O O O O O
The Mind	O O O O O	O O O O O	O O O O O	O O O O O
Coordination of Mind and Body	O O O O O	O O O O O	O O O O O	O O O O O
Emotions	O O O O O	O O O O O	O O O O O	O O O O O
Social	O O O O O	O O O O O	O O O O O	O O O O O

Average for Self = 80 %

On Date 12-1-40

this survey showed need of improvement and then to compare from month to month his progress or retrogression.

Perhaps you are now thinking, that young people would have the same difficulty as their elders in being absolutely honest about the whole matter. Judging from many years of experience, this conclusion is not true. Students between the ages of 18 and 24 are very likely to be objective in considering their poor points as well as their good points. Older people with their resignations and rationalizations, might not be so honest. Running through the entire study of the individual's personality in an attempt to establish self-mastery, there was one clear note. "Aliveness" was established as the outstanding and most important total characteristic of any personality. This point alone was conducive to a much better spirit and increased effectivity in the lives and work of these embryo optometrists.

STUDYING THE OTHER FELLOW

The third and major step in conditioning was accomplished by a study of other people. Other people—the 100,000 patients—were the problem. They must be sorted, ticketed, and assigned to groups for which norms could be set up. Norms so well learned that non-conforming individuals would be promptly discovered.

Unpredictability in human nature gave deep interest to the third step in this conditioning process. People are not like jewels or books. They refuse to be accurately classified. People do have, however, two points on which as patients, they are in agreement almost without exception. You may easily understand this point by considering your own

feelings at the time of approaching your physician or dentist, in fact, you might include your lawyer or clergyman.

TRUISMS IN PATIENT PSYCHOLOGY

First, practically every patient honestly thinks he is the most singular case yet presented in the professional field to which he is appealing. He is sure that the peculiar set of circumstances which brought him to the professional man never quite occurred before. Second, every patient believes with equal sincerity that any remedy for his very special condition can be brought about only by very special attention. He is sure that what he needs is something different from anything that has ever been prescribed before. Of course, it is not well to tell that, any more than it is to tell you right now that you are trying by rationalization to prove yourself different, to prove that you do not have these two beliefs in common with so many other people. But you do have.

These two points, almost diametrically opposed to the true situation, did several things in the conditioning of these young "doctors." First of all, they pointed clearly to the necessity for individual professional approach to every patient. For by that method and that method only, they might hope to harness for control purposes this patient's amazing belief. In the second place, they emphasized the necessity for professional handling. Any prescription required for a patient would be better appreciated, more highly valued, and, therefore, more easily accepted, and do more good, if it is shown to be a specific and peculiarly individual correction for the patient.

Most cases, as older practitioners are fully aware, are not extraordinary. They are ordinary. Referring that statement to the two points on which patients were indicated as being alike, we discover that even though they think they are unusual, there are few unusual cases. In the second place, their belief that they required peculiar corrections could be measured up against the fact that the optical industry over a period of years could probably furnish record as evidence of the high frequency with which certain lenses are used.

BASIC PATTERNS FOR PEOPLE

Despite this unpredictability of people, there are certain basic patterns into one or more of which every person naturally falls. These must be based on the chronological age of the patient, although this still admits the possibility of variables. Certain norms could be laid down for each

of these age divisions and then learned. With these learned, the actual use of the age of the patient, in history taking, has a new meaning. Age becomes a valuable consideration for the young "doctor" thus informed.

To subdivide people completely into groups or classifications, account must be taken of what might be called the psycho-physical and physiological development in respect to chronological age limits. Overlapping in these age brackets must be recognized and allowances made.

The main divisions given were the growth period, from birth to about 18 years of age; the functional period, from about 15 years of age to 50, and the fixated period, from about 40 years of age to death. Each of these was further subdivided.

Growth Period

During the growth period many biological factors exert their influence. Poor glandular balance, instabilities of the nervous system, and the disastrous after effect of acute children's diseases make uncertain any conclusions reached by analysis of the oculo-optical data. In the growth period six subdivisions are important.

(1) From birth to three years of age is a period of rapid physical growth. Adjustments must be made as "folk waves" are met. Techniques of getting what you want, when you want it, are slowly developed.

(2) From four to five years of age, ordinarily known as the "me" period, embodies the problem of an ego to be developed. Meanwhile, the web of contacts is growing and must be met in the face of a new problem—difference in height.

(3) Six, seven, and eight years of age, is the period known as "make believe." Adjustment is necessary to bridge the gap between the adults surrounding the child and the child himself.

(4) Nine, ten, and eleven years of age, has been called the "wiggly" period. Adjustment is gravely affected by the important glandular changes about to take place.

(5) Twelve, thirteen, and fourteen years of age, the period of physical adolescence, where the boy turns into a man and the girl into a woman, is the result of glandular changes. A "change of life" occurs that could be easily misunderstood by adults to the confusion of the child.

(6) Fifteen, sixteen, and seventeen years of age, is the "love" period. Adjustment hinges largely on steps which might lead toward homo-

sexuality instead of the desirable heterosexuality, and thus make difficult the normal mating process.

Functional Period

During the functional period old difficulties may become intensified and acquire new causative factors. The increasing demands of adult life together with increased susceptibility to pathological dangers equalize the importance of the oculo-optical data and the inclusive history. In the functional period three subdivisions are presented.

(1) Eighteen to twenty-four years of age, is the period of intellectual adolescence. The adjustment made, expresses itself in dissatisfaction with established orders.

(2) Twenty-five to thirty-four years of age, is the period of social adjustment. The innate desire to "belong" affords situations which may or may not lead toward marriage.

(3) Thirty-five to sixty-four years of age, is known as the "middle age plateau." The problems of adjustment touch on family, business, home, sex, longevity, economics, and other kindred subjects.

Fixated Period

During the fixated period the natural processes of advancing age together with the pathologies common to age, tend to upset any attempt to balance case history with the oculo-optical data. Actually history has little bearing on a situation where the symptoms alone require correction.

The fixated period, although not subdivided, was shown to be important because either of two almost opposite conditions could exist. Either the patient, well adjusted and wholesome, happily approached this age of fruition with confidence, comfort, and certainty; or, with adjustments broken down in many of the previous subdivisions, he approached this later life, worn down by senility, satiety, and regret.

APPLICATION

Teaching material on the two points, namely, self-mastery and knowledge of others, covered a period of four quarters with three lecture hours per week. Conditioning was accomplished with interesting materials filling out the pattern just outlined, and presented to these students of college age. Certain it is that they entered the clinic professionally-minded, or, at least aware of their own weaknesses with some measure of confidence in their own honesty with themselves, and with a keen interest in the human beings who were to be their patients.

Applying all of the foregoing to their actual work with the patients was the next task, and therein lies the actual method of patient motivation now presentable because of the three-step conditioning which preceded. It will be seen quickly that it could not have been used effectively except after such conditioning. In describing it here, as in desecribing and teaching it to classes, the problem is to prevent the listener from assuming it to be a religious code rather than a scientifically psychological approach.

EUPHORIA UNIVERSALLY DESIRABLE

Euphoria is the term which may be most helpful. Quoting from Warren's "Dictionary of Psychology," euphoria has two meanings:

"1. Bodily comfort or well-being;

"2. A pathological mental state characterized by unfounded feeling of well-being, optimism, and bodily health and strength."

Quoting from Webster's New International Dictionary, second edition, copyright 1939, we find euphoria—"*literally*, a bearing well: psychologically a sense of well-being and buoyancy."

Almost diametrically opposed meanings in one case, and in the other without pathological implication, these two definitions could apply to the normal and the abnormal; the well and the sick; the healthy and the unhealthy. Almost all people, whether normal or abnormal, well or sick, healthy or unhealthy, are happy in a state of euphoria. It is a desirable state. It is a state we seek to attain. People generally like to be euphoric and they seek out those who make them feel euphoric. In that state, words come easily and it is easy to be pleasant. Cheerfulness, keenness, warmness and heartiness make for an enthusiasm that is strong. Euphoria is probably produced by an emotional stimulation that innervates.

How then is this desirable stimulation to be accomplished? Your own personal experience answers that question promptly and thoroughly. You are stimulated emotionally in the presence of those who genuinely like you and elevate you. You feel your self-expression having full play. You are not thwarted.

These things are true. Whether they are measurable physiological reactions, must be judged from controlled laboratory measurements made in connection with more intense emotional stimulation. The con-

clusion would probably indicate that a definite physiological reaction occurs to produce the state of euphoria.

Sugar and the Baby

An example of euphoria may be found by considering the new-born baby. He desires one thing most beyond safety and comfort and that is food—one food in particular. The new baby wants sugar. Many of you have observed the utterly satisfied, placid, complacent, happy expression on the face of a baby completely satiated at his mother's breast—at least, unless a spell of colic followed.

Breast milk is known to be sweeter than ordinary milk, hence special formulas for bottle feeding require the addition of sugar. Some of the supposed filial devotion, which mothers assume the baby has for them, is more than likely not that at all. Early in life all that baby knows is that he wants sugar and he knows where to get it.

Now, why does he want sugar? Well, he wants it for the same reason that we as adults are glad that we have a system of internal secretion, a system whereby sugar is shot directly into the blood stream when desired and when needed. Thus, we are given abilities beyond ordinary. We can run faster, jump further, fight harder, do a better job of speaking, recite better, think better, and play better because our musculature is stimulated by sugar.

When people elevate us, they are literally feeding us sugar and we are no different from the baby. We like the sugar—we want it—we know where it comes from—we know those who will give it. So, we like them and seek them out.

Synthetic Sugar

First then it is necessary to find ways and means of *making* people —patients—like you. A brief formula was laid down by which these young "doctors" might attempt that.

First, they must like people. Secondly, they must always elevate them. While that sounds simple, it is not easy.

In order to like other people and make no exceptions, one must cast out of mind all prejudices. Religious prejudices, political prejudices, sectional prejudices, racial prejudices, all must be cast on the altar and there consumed. That is a difficult task. Now, the young "doctor" faced the requirement of liking every patient that came to him, regardless of

race, color, creed, nationality, religion, or anything else. He had learned that the measure of the other fellow's liking him would depend upon how promptly and how genuinely he first liked the other fellow. Liking the other fellow *first* was the important thing. It is fairly well established in the mind of each of us that most people like us just about in proportion to our liking for them. They can feel that. It is so true that it is almost a law.

Elevating the Other-Fellow

The second step of elevating the other fellow is still more difficult because it means practically constant adjustment.

Adjustment is the most important thing we have to do, and the most difficult. Someone has described adjustment as comparable to riding a bicycle. The picture of a good bicycle rider traveling at high speed, without holding the handle bars, represents perfect balance—perfect adjusting. Constant balance is required. The good thing about adjusting, also comparable to riding a bicycle, is that the more you do it, the easier it is to maintain your balance. That fact might be held out as a reward.

Techniques of elevating the other fellow had to be taught and then practiced. In order to be taught and practiced, they must be sincere and scientific. The first technique given was described as being willing to admit your own ignorance. Sometimes that word ignorance was a drawback. It was used for lack of a better, more descriptive word. It might be stated as the ability to refrain from acting "too smart." The difficulty most of us experience in attempting to elevate the other fellow is that we are usually too busy trying to elevate ourselves. We haven't learned that self-elevation is not important because it is insecure.

Credit the Other Fellow With "Knowing"

Everyone has a desire to be as able as possible, to be recognized and appreciated, to be heard. Most of us have a story to tell which we think is important. Our problem lies in trying to find someone else who thinks so sufficiently to let us "have the floor." We like the fellow who thus elevates us. The reason we like him is that he makes us feel euphoric.

How many times have you tried to tell your favorite yarn, or give the description of your vacation trip, only to be interrupted? Someone, who wanted to let you know that he had heard the joke before, or to break in with his own story, interrupted. Interruption destroyed your euphoria. It was unpleasant and you did not like it. Not liking it made you dislike the one who caused the interruption.

Accept Favors

The second technique offered for elevating the other fellow was a little harder to understand at first. Simply stated, it was this: Be more willing to accept favors than to offer them. Often this method of elevation is attacked on the basis that it does not match the familiar Biblical quotation, "It is better to give than to receive." Analyze that. Study is needed to understand it.

The endeavor here is to elevate the other fellow, to give him the best of it. Now, if it is better to give than to receive, make it possible for him to give. If he does give, "it is better." He gets the best of it. He is elevated thereby.

The reason for this feeling of elevation is simple in that we all enjoy feelings of proprietorship. We like to have the other fellow under obligation to us. The trouble lies in the fact that most of us are constantly striving to keep from being under obligation to the other fellow. How much happier the world would be if all of us learned to let the other fellow satisfy his desire to serve; if we were unselfish enough—brave enough—to become obligated to the other fellow in the interest of *his* euphoria.

The classic example of this point is the story regarding Benjamin Franklin's candidacy for public office on one occasion. He was strenuously opposed by a well-known citizen, a citizen of power and influence. He attacked Franklin and his candidacy with everything he had. Franklin, keenly alive to the psychology of the situation, addressed a letter to this eminent gentleman during the heat of the campaign for office. Franklin's letter was a simple and friendly request for his adversary, his political enemy, to lend him—Franklin—a certain book in the adversary's library. It is easy to understand the confusion which must have been the result of receiving that letter. Place yourself in the adversary's position and decide whether you would have lent Franklin the book. Probably you would have, because there wasn't much else you could have done. The story runs that his adversary lent Franklin the book and withdrew objection to his candidacy. Franklin was elected. He had aided his erstwhile adversary toward euphoria.

That story might be a bit misleading, but applying it to ourselves the fact remains that once we have done something for the other fellow it is easier to do for him again. We like him because he provided the

opportunity for us to express ability and superiority. He elevated us.

Listen!

The third technique of elevating the other fellow was a simple one but difficult to follow. It was "learn to listen." The reason most of us have trouble with this technique is because we want to talk ourselves and so can't listen well. The patient motivation resides in trying to make the other fellow like us. He likes someone who listens to him. We must learn to listen.

Listening is probably one of the most important attributes of the professional man. In endeavoring to get a good history, so valuable in the diagnosis and prognosis of any case, listening is most important. People will talk only when they are being listened to. When the doctor, or any professional, is unable to listen or unable to show that he is listening, he is to that degree unsuccessful. To get all of the history he may need before he has successfully finished with the case, he must listen.

One of the things which had to be taught these young "doctors" was that the act of listening was sometimes hard because they were already normally dissatisfied with established orders. Their teachers, their parents, their religions, and most other things were to their way of thinking, outmoded. They were then taught "listening" by demonstration methods in class, so that the other fellow—the patient—might know they were listening. They were taught to show by their manner that they were listening.

Application of these techniques should include a "compliment" course. For a period of 30 days the young "doctor" should be directed to record three compliments deliberately offered each day. The record, turned in for credit, should include the name of the person, persons or group complimented; the nature of the compliment; under what conditions offered and the reaction to it. It is easy to see that such a program continued over a 30-day period, made easy its continuance.

So much for a method of patient motivation based on deliberately making the other fellow like the doctor; that is, deliberately inspiring respect and confidence by employing methods, ways and means, and techniques of elevating the patient.

LITTLE THINGS THAT COUNT

The report of this experiment cannot be brought to a close without

a statement regarding the usually recognized requirements of professional behavior. The spoken word is so important for professional men while dealing with patients, that special emphasis was placed on the subject. A good dictionary was recommended as a day by day text book by which the "word skill" of these young "doctors" might be expanded. Then, there was the matter of touch—the neuro-muscular pattern. Emphasis was placed on the necessity for hands being clean and not oily. The importance of firmness when touching a patient was stressed.

Facial expression came in for its measure of importance. The "dead pan" was held up for ridicule and avoidance because, almost without exception, careful study and effort will obviate that liability. Alertness and other earmarks of animation are much more productive of euphoria than disinterest and stupidity of appearance.

Odors and their ill effects were dealt with. That body odor, so often results from just plain failure to be clean about one's clothing, was emphasized. Failure to use soap and water was labeled as pure carelessness. Halitosis, seemingly unavoidable as it may be at times, was labeled as selfish and boorish, since it is in effect a refusal to protect other people's delicate senses from unnecessary shock. Odors on the hands from food, onions, cigarettes, and so on, were shown in the role of distractions that operated against the creation of a euphoria.

We are inclined to make light of these important things. We are inclined to miss their importance. Taking things for granted and failing to observe danger signs here and there have damaged professional men's approach to their patients and the motivation thereof.

Dr. George W. Crane, of Northwestern University, conducted a survey on positive and negative motivation for the dental profession. It was an important survey. The dentist, like the optometrist, has to handle the patient a great deal, particularly about the face. These young "doctors" were taught the lessons of that survey and we, too, can learn from it.

Dr. Crane's survey pointed out that most patients did not mention the university from which their dentist graduated. They didn't mention or consider the college grades the dentist had made. Most of those people surveyed made no mention of the scientific honor fraternities to which the dentist belonged. They weren't concerned with his memberships in scientific organizations. But much weight was placed on the dentist's personality, his pleasantness, his clean, modern office equipment, his

fastidiousness in dress, his ability to appear "knowing," and to inspire confidence.

Dr. Crane pointed out that the dentist's "shining tools" usually got more credit than his diploma. The first reaction to the survey is that it might have been applied to people of relatively low cultural and economic status. That is not correct. Dr. Crane's classes at Northwestern University included students ranging from high school graduation age well up into mature life. It was these people, university students, who were asked to state reasons; first, why they went to their present dentists; second, if they had ever left a dentist, and why.

Dr. Robert J. Beitel, a colleague in the Bureau of Visual Science, made a similar survey concerning eye specialists, applying it to university extension students. His survey was comprised of four questions, the answers to which are important to optometry.

"Of the eye specialists you have visited, whom do you consider the least competent and why?" was Beitel's fourth question. One hundred and eighty-five persons were asked and only fifty-one attempted to answer it. Sixteen per cent decided on incompetency because the eye specialist was an optometrist. But 84 per cent on incompetency for much the same reasons as Crane found. Beitel calls these "personal reasons, unsatisfactory methods and unsatisfactory service." That is how he classifies them but the actual answers are more specific and would be alarming to the careless optometrist.

These young "doctors" were taught and made to consider in practice all of these obvious facts just mentioned, while applying the system of patient motivation reported in this paper.

At the Northern Illinois College of Optometry, in Chicago, about 100,000 patients were motivated in part at least by 2,000 or 3,000 young "doctors" during a period of ten years from 1930 to 1940. Of course, they practiced that method of patient motivation in varying degrees. As stated in the forepart of this paper, there is no written data on this experiment.

E—GROUPING OF RESULTS

The results can be stated as follows: First, the great majority of these young "doctors" went out into the field to practice optometry quite able to show their friendliness and likeableness, to their State Board Examiners, and later to patients who are even now building successful

practices for them. Supposedly only a few broke down, failed and landed in commercial practices.

Second, Northern Illinois Eye Clinic did not decline as it might have if the patient motivation had not been satisfactory. It grew from an average of approximately twenty-two patient visits per week in 1930 to over 1,000 per week by the end of 1939.

Third, during that period of ten years from 1930 to 1939, inclusive, and through the handling of 100,000 patients there were exactly two lawsuits. Both of them were minor and settled out of court.

Fourth, Chicago is the headquarters of the American Medical Association with a paid group of active and alert political leaders. This is said not in criticism but enviously. We do not have the same thing available in optometry. If the Northern Illinois Eye Clinic had not been able to do its work without crossing over into the medical field, much trouble would have been the result.

During those ten years, there may have been many inspections made without announcement. Without doubt, many patients were sent to the Northern Illinois Eye Clinic for the purpose of securing evidence of malpractice or of operation beyond the limits of optometrical practice. The fact remains that the best information available in the records of that clinic shows that there was never any action taken against it by anyone.

F—STATUS OF THE PROBLEM

The experiment in motivation is an unfinished one and the results just listed are incidental to the result in terms of optometry's major problem—the achievement of favorable public opinion. Reporting the experiment records officially a ten year project which was contemporary with the growth and development of the profession of optometry during the period from 1930 to 1940.

Reporting the experiment to the American Academy of Optometry brings it to the attention of an organization which, as much as any other, is concerned with optometry's growth in the direction of professionalism, is interested in further studies along lines that will attract favorable public opinion for the profession of optometry.

Favorable public opinion is a social reward. Today, more than ever before, extensive and intensive social changes challenge optometry's place in the sun. How to meet that challenge is, at present as it was ten years ago, a grave question. Optometry must justify its existence.

As a profession, recognition among the preventive and curative sciences is necessary; increasingly, if slowly, optometry is achieving that recognition. Recognition in the social field awaits justification of her existence economically. Here an important point is raised. Optometry can hardly achieve favorable public opinion while she fears it. The fear of public opinion exists because she has failed to clearly define her sphere of service and relation to its economics. The fear of public opinion exists because optometry has always either directly or indirectly emphasized the materials used. Materials are in the white light of public inquiry. It is not new that consideration of materials, as such, has always been assigned to the field of economics. For optometry to achieve further favorable public opinion, she must consider thoroughly her economics.

At a glance, optometry regardless of how professionally conditioned her individual doctors may be, and that is highly desirable, depends in the final analysis upon how well justified her existence is from the economic viewpoint—how well she expresses herself in the field of professional service. Economically optometry must place the emphasis on service where it belongs—not on materials.

But consideration of economics on the part of optometry and optometrists involves the contemplation of many questions, looking toward their ultimate solution. Certain it is, that professionalism must pay or optometry will not be practiced that way. Whether there is any desirable relationship between professionally practiced optometry and sound economics might well be one of our most profound questions. It will have to be answered before optometry can make a united intensive thrust toward its goal—favorable public opinion.

Shall optometry be practiced on the commercialized basis of the store or on the personalized basis of the private office? Shall optometry keep the emphasis on glasses as material and charge for them separately, or shall the fashioned materials be considered as incident to the rendering of a professional service and included in that fee? Does optometry include as a part of its professional services the fitting, adjusting and servicing of the prescribed correction? How shall optometrists secure the necessary economic balance desirable by being paid for all its services, while at the same time, participating in the general social welfare?

Questions cannot long be avoided. Words alone will not answer them. Generalities have been dealt in, and wishful thinking has failed of its purpose. Analysis based on accumulated data is demanded.

Conditioned more or less uniformly as they were, the young "doctors" described in this experiment are supposedly in practice. They can hardly be professional unless prideful. They can hardly be prideful unless successful economically. Clearly, further study of these optometrists in practice may yield information of utmost significance for optometry.

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AGITATION UNFOUNDED ON THE CONSUMER COSTS OF OCULAR SERVICE

The suggestion is occasionally presented to the profession that the total consumer costs of ocular services including materials are too high and that a reduction in the fees for these should be made. As a rule the suggestion is accompanied with the proposal that all of the professional service charges be specifically made in each case and that by so doing the public would have a better understanding of the actual costs of ocular service.

If this latter suggestion were taken seriously and applied in actual practice the writer believes it would result in a marked increase in the total consumer cost of refractive service. This is true even if the lowest

possible minimum professional service fees and material charges were used in actually computing the total charges the patient would be called upon to pay.

In making an investigation of this subject there are several aspects of the problem which must first be agreed upon to substantiate the validity of any position taken on the matter. In other words, there must be an agreement on certain basic facts before the subject itself can be given critical attention. These are, (1) that supplying optical materials to one's own patients is part of the work of the optometrist, and (2) that the practice of optometry is a professional activity and should be conducted as such. As there will be a general agreement among optometrists and others on these particulars it should therefore be interesting to investigate the field of professional service charges as these apply to the activities of the optometrist who practices according to them.

The first of several professional fees to be considered would naturally be the examination fee. This is a charge now universally made to patients by optometrists to compensate them for the skill required and time consumed in making the various steps of an examination, as well as for the diagnosis and the writing of a prescription.

Recent years have demonstrated the fact that but very few ocular cases can be properly examined during but one office call and in many optometrists' offices the total examination period is regularly divided into the *refraction* which is made during the first visit and the *post-refraction* which follows on a subsequent day. Now the minimum professional fee which can be made for the refraction proper (because of skills and time involved) is $3.00 and the minimum fee which can be made for the post-refraction will be a fee similar to an office call, which is $2.00. Therefore, the total minimum examination fee for the general run of cases will be $5.00.

The second of these professional charges now to be considered will be the fee for advice given the patient on the selection of materials and to compensate him for taking the patient's facial measurements. A minimum fee for this service would be $1.00. This portion of an optometrist's work is also very important. It requires of the professional man, a wide knowledge of materials and their specific and at times peculiar advantages of use in certain particular cases. It also requires considerable skill to properly determine the exact measurements which will enable an optician to process materials in such manner to fully express both a

correctly filled prescription from a technical standpoint, as well as glasses which adequately express the patient's individuality from the viewpoint of appearance.

The third of these professional charges, next to be considered will be a fee for dispensing the materials when these are finished. Here, too, the professional man contributes much in the way of technical knowledge, for proper positioning of lenses and adjusting of frames have a great deal to do with the ultimate comfort received by the patient as the result of wearing the glasses. The first and initial adjustment of a new set of glasses takes both time and skill and a minimum fee for this service would be $1.00. In many cases the fee should normally be in excess of this amount as the time alone consumed in doing this work is large in the aggregate.

The fourth of these professional charges next to be considered will be a fee for general technical service to be given the patient on his optical materials during their life. Tradition now decrees that glasses be serviced without specific day-to-day charges for this service. The public assuming they have paid in advance for same. Assuming the average life of a pair of glasses to be three and one-half years and also assuming that these glasses are returned to the optometrist every six months to be tightened, straightened and re-alligned, we find the optometrist called upon to perform a useful and technical service six times during the average life of *each* pair of glasses he prescribes. While the amount of adjusting necessary during these secondary visits is less than at the time the material was first dispensed, it does nevertheless take both time and skill for which the optometrist should be compensated. A minimum fee of 50c for each office call of this kind would not be excessive and as the average patient makes six such calls during the life of a pair of glasses, the professional charge in advance for this service should be $3.00.

The last of these professional charges to be considered will be a fee to compensate the optometrist for his capital investment and depreciation in diagnosing and refracting equipment; to compensate him for his accounting costs, carrying charges and credit losses; and to compensate him for the office overhead which results from breakage in the handling of materials. A minimum fee of $2.00 per case would just cover these items in the office of the average optometrist.

Therefore in computing his professional fees the following minimum items should be considered:

Refraction fee	$ 3.00
Post-refraction fee	2.00
Advice on materials and securing facial measurements	1.00
Adjusting and dispensing fee	1.00
Future service charge on materials	3.00
Account handling charge	2.00
Total	$12.00

In an investigation of an optometrist's practice the above professional fees and charges would all be found to be legitimate professional service charges. Each is well within the province of the practice of the optometrist and each is made for services supplied to the patient for which he should be expected to pay. Legal and business accounting experts are in agreement that these fees and charges constitute a basis for uniform and basic professional service charges on the part of the professional optometrist.

To the above must be added the actual cost of materials, whatever these charges might be. As most optometrists purchase the completed materials from an optician's laboratory, the costs of these will vary from $6.50 upwards depending upon the type of material selected and the character of the prescription the optician is called upon to fill. Certainly, at least, the actual cost of materials supplied to the patient should and must be added to the above professional fees and charges in determining the total cost of the ocular service rendered the patient by the optometrist.

When this is done the minimum total fee is slightly greater than the average consumer cost of complete ocular refractive service as it stands today. Therefore, those citizens who belabor both the optical industry and the optometric profession because of the *present* consumer cost of eye care are found to be wrong. It is evident that they have failed to take into consideration a number of important legitimate service charges which have an important and direct bearing on the total fee paid for ocular services. Charges which are both proper and inevitable in this type of work.

To be sure, but few if any optometrists present itemized statements to their patients which include all of these items. Yet the statements which are presented to patients do include them in one way or another. And they have to do so if the optometrist is to continue his practice. The profession is well aware of its skills and technical ability and is

amply prepared to defend its professional fees at all times, as these are both proper and in a great part always at the minimum levels. The fee the public is now called upon to pay includes these charges as well as the cost of materials and the generally excellent service rendered by optometrists makes these total costs small, indeed.

CAREL C. KOCH.

TRANSACTIONS OF THE AMERICAN ACADEMY OF OPTOMETRY

by J. Fred Andreae, Secretary

A department devoted to announcements, reports, appointments, organization data, news, professional problems and ideals, as these relate to the Academy.

PRESENTING SPEAKERS WHO WILL APPEAR AT THE ANNUAL MEETING OF THE ACADEMY

In this issue, as in the preceding two, we are again presenting a few of the speakers who will appear before the Academy at its annual meeting at the Hotel Morrison, Chicago, December 7, 8 and 9.

Dr. Richard M. Hall, Dr. Charles Sheard and Dr. Carel C. Koch are all well known in refractive circles and their presence on the program will add to the interest of these important optometric sessions. A full registration of members is expected.

DR. RICHARD M. HALL

Past President of the American Academy of Optometry and at present a member of the Board of Examiners. Member of the Council on Education of the American Optometric Association. Principal contributions: "Etiology and Non-Operative Treatment of Strabismus," 1928; "A Differential Test for Amblyopia," 1929; "Ophthalmic Lens Control of Amblyopia - ex - Anopsia," 1940. Dr. Richard M. Hall is in practice in Cleveland, Ohio.

DR. RICHARD M. HALL

DR. CHARLES SHEARD

DR. CHARLES SHEARD

Charles Sheard was born in Dodgeville, N. Y., May 27, 1883. He received his Bachelor of Arts degree from St. Lawrence University, 1903; Master of Arts from Dartmouth, 1907. In 1912 he received his Ph.D. at Princeton, which was followed by a D.Sc. in 1930. He served as Assistant Professor of Physics at the Ohio State University from 1907 to 1913. As Professor of Applied Optics at the same institution from 1914 to 1919. He served as Director of Professional and Scientific Research for the *American Optical Company* from 1919 to 1924. Since 1924 he has served as Director of the Division of Physics and Biophysical Research at the Mayo Clinic and Professor of Biophysics under the Mayo Foundation of the University of Minnesota.

He is a Fellow of the American Association for the Advancement of Science; member of the Ophthalmic Institute of Great Britain; Optical Society of America; American Physiological Society; Society of Experimental Biology and Medicine; American Society of Clinical Pathologists; American Congress of Physical Therapy; American Society of Plant Physiologists; American Hearst Association; Association for Research in Ophthalmology; Illuminating Engineering Society; Honorary Member of the American Optometric Association; Research Gold Medalist of the Distinguished Service Foundation of Optometry; Chairman of the Council on Education of the American Optometric Association, and Fellow of the American Academy of Optometry.

He is author of *Dynamic Ocular Tests* (1917); *Physiological Optics* (1919); *Dynamic Skiametry* (1920); *Ophthalmic Glasses* (1921); *Ocular Accommodation* (1921); *Practical Ocular Tests* (1924); *Life Giving Light* (Century of Progress Series, 1933). He presented the Fourth Thomas Young oration in London, England, in 1921. His chief researches have been in the fields of dynamic ocular tests; relationships between accommodation and convergence; the effects of radiant

energy upon plant life and animal tissues; applications of spectrophotometry and photo-electrometry to biology and medicine; and heat losses and temperature regulation of the body. Dr. Charles Sheard's home is in Rochester, Minnesota.

DR. CAREL C. KOCH

Dr. Carel C. Koch is an optometrist of Minneapolis, having entered practice in 1918. He has served as editor of the AMERICAN JOURNAL OF OPTOMETRY AND ARCHIVES OF AMERICAN ACADEMY OF OPTOMETRY since 1924. He is a past president of the Academy and at our Chicago meeting will present material dealing with one phase of the sociological problem of eye refractions and visual care for the indigent, through the medium of county welfare boards.

Fellows of the Academy are urged to *now* make their hotel reservations for these sessions. Address letters direct to the Hotel Morrison, Chicago, Illinois, stating time of arrival and room preference. As there is much general travel and as all hotels are crowded, it is advisable to make your reservations without further delay.

Dr. Arthur P. Wheelock, President of the Academy, will open the sessions promptly at 10:00 A. M. on December 7, and a full attendance of members is expected. The program for the three-day period follows:

OFFICIAL PROGRAM

Opening Session

Sunday, 10:00 A. M., December 7, 1941

Dr. Arthur P. Wheelock, Chairman, Presiding
Des Moines, Iowa

Chairman's Address

Dr. J. Fred Andreae, Secretary
Baltimore, Maryland

Annual Report

Luncheon

LECTURERS

P. M.

1:15 Dr. Robert E. Bannon, Hanover, N. H.
Practical Aspects of Aniseikonia.

2:15 Discussion

2:45 Dr. Henry B. Peters, Chico, Calif.
Visual Acuity and Visual Perception.

3:30 Discussion

4:00 Drs. Glenn A. Fry and V. Ellerbrock, Columbus, Ohio.
Effects Induced by Anisometropic Corrections.

4:30 Discussion

Dinner Recess

7:30 Dr. Carel C. Koch, Minneapolis, Minn.
A Plan for Refractive Eye Care for the Indigent and the Medically Indigent in Minnesota.

Monday, December 8, 1941

A. M.

9:30 Dr. H. F. Brandt, Des Moines, Iowa.
Ocular Photography as a Scientific Approach to the Study of Ocular Patterns and Their Psychological Implications.

10:45 Discussion

Luncheon

P. M.

1:30 Drs. Mathew Luckiesh and Frank K. Moss, Cleveland, Ohio
Eye-Movements and the Visual Task

2:30 Discussion

3:00 Dr. Charles Sheard, Rochester, Minn.
Dark Adaptation: Physical and Physiological Consideration, with Clinical Applications

4:00 Discussion

7:30 Formal Dinner—Dr. Felix Held, Ohio State University, Columbus, Ohio

Tuesday, December 9, 1941

A. M.

9:30 Dr. Lewis H. Kraskin, Washington, D. C.
Emotions and Their Effect on Body Functions

10:15 Discussion

10:45 Dr. Richard M. Hall, Cleveland, Ohio
Income Levels of Optometry and Allied Professions

11:30 Discussion

ABSTRACTS

A department in which will appear abstracts of the literature of optometry, ophthalmology and applied optics. These will be classified according to the following list, although contributions to all sections will not necessarily appear in each issue.

1. Ocular Refraction.
2. Physiological Optics and Color Vision.
3. Ocular Muscles.
4. Orthoptics and Reading.
5. Anatomy, Histology and Embryology.
6. Ocular and General Pathology.
7. Ophthalmic Lenses and Material.
8. Instruments.
9. Hygiene and Illumination.
10. Applied and Physical Optics.
11. Education, Sociology and Economics.
12. Miscellaneous.

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11. EDUCATION, SOCIOLOGY AND ECONOMICS.

AN OCULAR POLICY FOR PUBLIC SCHOOLS. Irvine, R., American Journal of Ophthalmology, 1941 (July), 24, 779-788.

"School authorities are handicapped in deciding proper ocular procedures by conflicting ophthalmological suggestions. Unqualified groups motivated by selfish interests exert an influence far from scientific. This paper endeavors to show a scientific manner in which this problem should be treated." In addition, it emphasizes the following points: (1) There is no physiological reason why the eyes should not be taught to recognize visual symbols, as letters, figures, or words, as soon as the ear is learning to interpret auditory symbols. (2) The eye muscles depend on sight for their sense of position, hence so-called "faulty" eye movements, as judged by regressions, depend primarily on poor visual understanding of the subject matter read and not on incoordinated eye muscles. (3) The belief that school work may harm the eyes or predispose them to the need for glasses has no scientific basis. (4) Regarding the process of learning to read, not the eye but the brain learns to read.—R. J. B.

CHICAGO TEACHERS UNION MEDICAL CENTER PLAN. Crew, M. C., and Daniels, E. A., Medical Care, 1941, 1, 2, 162-164.

The authors describe the health service rendered the members of the teachers union of Chicago by the Civic Medical Center of that city, a cooperative organization of physicians, including general medicine and the specialties. The Civic Medical Center agrees to furnish on a prepayment basis medical services such as diagnostic examinations, consultation, and treatment at home and at the office, chemical and laboratory tests, x-rays, immunizations, and major and minor surgery. Home calls, medicines, and hospital services are furnished at very moderate additional

cost. Dental and optometric services are available at reasonable rates. According to the authors more than one thousand Chicago teachers are enrolled in the plan.—C. C. K.

BLINDNESS IN THE STATE OF NEW YORK. Pfeiffer, R. L., and Booth, A. O., Archives of Ophthalmology, 1941 (July), 26, 85-97.

Statistics on blindness in the United States are incomplete. There is not, therefore, an accurate conception of the prevalence or causes of blindness. Few reports have been issued, and all of these relate the difficulty of compiling accurate data. This is due to the failure of a great many of the reports of individual cases of blindness to convey a precise understanding of the ocular conditions producing blindness. The study of blindness in the state of New York reported here is greatly qualified by this difficulty and is the basis of a plea for better reporting on the blind and the partially blind in the state of New York.

In the two year period from July, 1937, when the Social Security Act became effective, to July, 1939, 2,685 cases of blindness were reported. According to the data on age of onset, 10 per cent of the patients were under one year of age. Hereditary and congenital diseases, anomalies and ophthalmia neonatorum were the chief causes. Seventy-five per cent of all patients were past 40 years of age, and 60 per cent were males. Diseases of the optic nerve accounted for 561, or 20 per cent, of all cases of blindness, and 135 of these were syphilitic. Diseases of the retina produced blindness in 379, or 14 per cent. Diseases of the cornea led to blindness in 13.5 per cent, and 270 of the 363 cases were attributed to "leukoma" of the cornea. Glaucoma was the fourth most prevalent cause of blindness (336 cases, or 12.5 per cent), and diseases of the lens resulted in blindness in 307 cases, or 11.4 per cent."—R. J. B.

INDUSTRIAL RELATIONSHIP. Wittekind, J. R., Pennsylvania Optometrist, 1941, 10, 2, 11-12.

While taking care of individual visual needs of the worker in industry, optometrists have collectively failed to function in the important industrial fields of visual safety and mass visual efficiency for workers

in industrial plants. This is the first of a series of papers dealing with public health optometry in industry.—C. C. K.

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12. MISCELLANEOUS

ALDOUS HUXLEY: THE OPTICIANS NOVELIST. Sutherland, J. C., Optician (London), 1941, C1, 2620, 285-286.

The author Huxley's frequent comments upon ocular and optical matters are discussed by Sutherland, who also gives a number of quotations from interesting and humorous passages dealing with Huxley's reactions to ocular problems, monocles and glasses.—C. C. K.

INDUSTRIAL RADIOGRAPHY. Lowery, H., Dioptric Review and the British Journal of Physiological Optics (London), 1941, 2, 1, 21-26.

Radiography as an industrial tool is quite distinct from the use of x-rays in the analysis of crystal structure. According to Lowery, when a beam of x-rays of uniform intensity is passed through an irregularly shaped body the emergent beam will no longer be of uniform intensity. Absorption will have occurred depending in amount upon the thickness and the density of the material through which the beam has passed. In consequence, the effect of the emergent beam on a photographic plate will consist of a shadow varying in depth according to the part of the object through which the rays have traveled. Examination of the photograph or exograph as it is called enables the examiner to deduce information regarding the form of the interior of the object. The art requires on the part of the examiner much practice and attention to detail. Lowery presents reviews of discussions which took place on this subject at a Conference on Industrial Radiography held by the Institute of Physics at London in January of this year.—C. C. K.

BENJAMIN PIKE, PIONEER IN AMERICAN OPTICS. Bettmann, O. L., Optical Journal and Review of Optometry, 1941, LXXVIII, 17, 23-24.

During the first half of the nineteenth century, Benjamin Pike and later his son did much to develop the field of optics in America.

Bettmann calls Pike the father of American optics. Pike came to America from England in 1804. He had been trained abroad in optics and established himself as an optician in New York City. In addition to making eyeglasses he and his assistants made much of the optical technical apparatus available during that period. Surveyor's equipment as well as materials used in glass-blowing and chemical laboratories were made in his establishment and these supplies were sold throughout the American states of that day through the extensive use of printed catalogues. According to Bettmann, Pike and his son used only the finest quality materials and for years set a standard for products used in optical and allied fields.—C. C. K.

THE VALUE OF A VISUAL ANALYSIS REPORT. Getman, G. N., Associated Journal of Optometry, 1941, 6, 9, 14-15.

In Getman's opinion most refractive patients should be given an individually prepared written analysis of their visual condition at the time of examination. The psychological effect of so doing is described by the author in this short report.—C. C. K.

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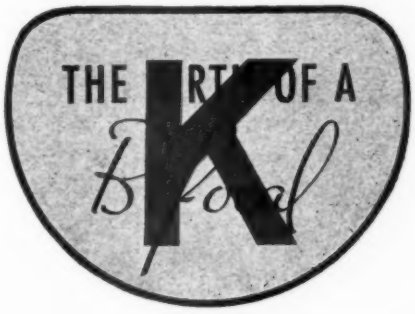

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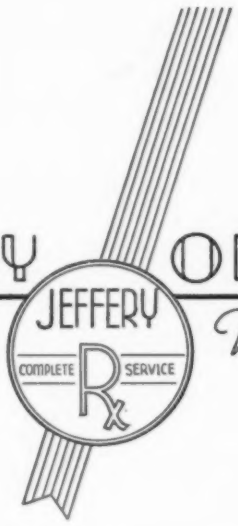

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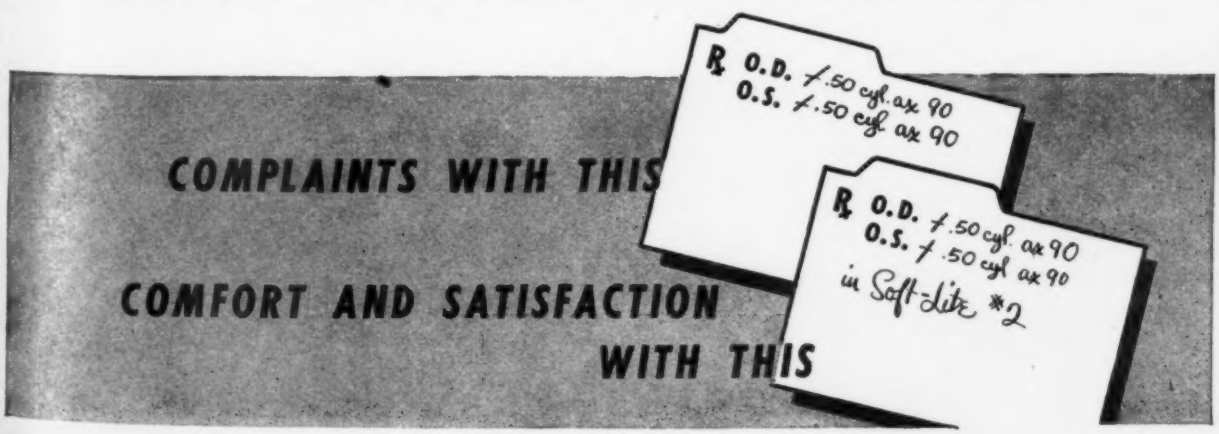
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